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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/883,276	06/19/2001	Shoichi Osada	0171-0759P-SP	9440

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EXAMINER

ZIMMER, MARC S

ART UNIT	PAPER NUMBER
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1712

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DATE MAILED: 04/01/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/883,276

Applicant(s)

OSADA ET AL.

Examiner

Marc S. Zimmer

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 June 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-6 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al., U.S. Patent # 6,190,787 in view of Shiobara, JP 10-324791. Maeda discloses a flame resistant composition for sealing semiconductors and a semiconductor sealed with the same. The composition disclosed therein comprises (i) an epoxy resin such as those presented at the top of column 4, (ii) a phenolic curing agent, (iii) a curing accelerator, (iv) a filler that constitutes up to 95% by weight of the composition (column 5, lines 15-18), and (v) zinc molybdate. Maeda's intent is to circumvent the need for adding halogenated organic compounds or antimony-based compounds to an epoxy host matrix by adding instead component (v).

Careful comparison of this list of ingredients with the claimed composition reveals that the only distinction to be made is that, whereas Applicant requires either the epoxy component or phenol curative of the instant invention to contain a specified degree of nitrogen content, Maeda is silent regarding the importance of utilizing nitrogen-functionalized epoxy and/or phenol resins. According to claims 2 and 3, the nitrogen content is supplied by triazine, guanamine, or cyanurate moieties that have been incorporated into the structure of these polymeric compounds.

Shiobara teaches another approach for preparing a flame retardant epoxy resin composition that is not reliant on halogenated or antimony-based compounds. In particular, a phenol resin curative containing triazine rings is employed. (During combustion, the triazine rings are decomposed into nitrogen by-products that suffocate the flame.) According to paragraph 26, the nitrogen content provided by the triazine rings is between 5 and 20 wt. %. In view of Shiobara's illustration that nitrogen heterocycles built into the phenolic component will impart good flame resistance, it would have been obvious to one having skill at the time of the invention to modify Maeda's composition by replacing component (ii) with a nitrogen-substituted homologue to produce a composition having an even greater degree of flame retarding character.

It is noted that Maeda identifies epoxy resins containing triazine moieties (column 3, lines 61-62) as a suitable embodiment of component (i). However, there is no indication as to what the extent of triazine ring incorporation is. Nevertheless, one of ordinary skill would, based on Shiobara's admission that nitrogen content is correlated with flame retarding efficacy, adjust the triazine content as a matter of routine experimentation to optimize this property. Accordingly, claim 2 is also obvious.

As for claim 5, Maeda teaches that it is preferable to use zinc molybdate in a form wherein it is coated onto an inorganic substance (column 5, lines 46-49).

Claims 1-6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Maeda et al., U.S. Patent # 6,190,787 in view of Honda et al., U.S. Patent # 6,214,455. Honda compliments Maeda by introducing the concept that phenolic resins featuring guanamine moieties may be used as curatives for epoxy resins. Like Shiobara, Honda

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allows that it is the presence of nitrogen in the phenolic compound that is responsible for improving flame retardancy (column 1, lines 62-64 and column 3, lines 49-53). The amount of nitrogen content in the epoxy resin composition is between 1 and 10 % by weight (column 5, lines 51-54). As before, it would have been obvious to one having ordinary skill to replace the phenol curative disclosed in Maeda with a guanamine radical-containing phenol resin to realize an added amount of flame retardance.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Marc S. Zimmer whose telephone number is 703-605-1176. The examiner can normally be reached on Monday-Friday 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Dawson can be reached on 703-308-2340. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

March 27, 2003



Robert Dawson  
Supervisory Patent Examiner  
Technology Center 1700